

REMARKS

Claims 1-4, 9-13, 18-20 and 23-51 are presently pending. In the Office Action dated August 25, 2006, the Examiner rejected claims 43, 44, 46, 50 and 51 under 35 USC 102(b) as being anticipated by Buschmann; rejected claims 43, 44, 50 and 51 under 35 USC 102(b) as being anticipated by Weinstein; and rejected claims 43, 44, 50 and 51 under 35 USC 102(b) as being anticipated by Trusty et al. In addition, the Examiner allowed claims 1-4, 9-13, 18-20 and 23-42. Applicant thanks the Examiner for the allowable subject matter. The Examiner indicated that claims 45 and 47-49 are objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Objections

By this amendment, claim 45 has been rewritten in independent form including the limitations of claim 43 and 44. Claim 47 has been rewritten in independent form including the limitations of claims 43 and 46. Claims 48 and 49 have been amended to depend from claim 47. Claims 45 and 47-49 are therefore allowable

Discussion of the Disclosed Embodiment

The disclosed embodiments of the invention will now be discussed in comparison to the prior art. Of course, the discussion of the disclosed embodiments, and the discussion of the differences between the disclosed embodiments and the prior art subject matter, do not define the scope or interpretation of any of the claims. Instead, such discussed differences merely help the Examiner appreciate important claim distinctions discussed thereafter.

The disclosed embodiment includes a spray applicator such as may be used to apply paint. The spray applicator includes a spray gun coupled to a supply vessel. The supply vessel includes two electrodes coupled to a control system. The control system transmits a current to one of the electrodes and senses a voltage at the other of the electrodes. The voltage is used to determine a resistance of the paint within the supply vessel in order to estimate the volume of paint remaining in the vessel.

Discussion of the Cited References

The cited references sense the level of a fluid by sensing a change in capacitance of a capacitor immersed in the fluid. As the fluid level changes between the plates of the capacitor, the capacitance changes, providing an indicator of fluid level. None of the cited

references teach or suggest using the resistance of a fluid within a supply vessel to detect a volume of paint. The disclosed embodiment provides significant advantages and has a completely different principle of operation than the cited references. The dielectric properties of a liquid are completely different from its resistance. Furthermore, the electric signal applied to the capacitance sensor must be an AC signal. In contrast, the signal applied to applicant's resistance sensor can be a DC or an AC signal.

The disclosed embodiment provides significant advantages over the cited references. It is clear that the capacitive sensors in the cited references must be immersed in the fluid. Furthermore, since capacitance is measured, the plates must be placed close to one another to provide a small capacitive gap that can be filled with paint. In order to have significant capacitance the plates must be large and they therefore occupy a significant volume and decrease the capacity of the supply vessel. In order to provide the proper gap, at least one of these large plates must occupy a portion of the volume defined by the supply vessel.

In the disclosed embodiment, since the resistance of the fluid itself is measured, only small electrodes need to be immersed in the fluid in order to provide an accurate measurement of the resistance. Furthermore, the electrodes do not need to be positioned next to one another such as in the case of capacitive sensors.

Discussion of the Claims

Turning now to the claims, the patentably distinct differences between the cited references and the claim language will be specifically pointed out. Claim 43 recites "a spray applicator, comprising: a gun configured to receive a liquid and atomize the liquid; and a supply vessel coupled to the gun that supplies the liquid to the gun, the supply vessel retaining a volume of the liquid and including a level sensor responsive to the volume retained by the supply vessel, the level sensor including a sensor element configured to detect a liquid volume solely by sensing a resistance property of the liquid."

None of the cited references, whether alone or in combination teach or suggest the spray applicator claimed. In particular, none of the cited references disclose "a sensor element configured to detect a liquid volume solely by sensing a resistance property of the liquid."

Claim 50 recites a spray applicator "wherein the control system includes a current-sensing network coupled to a voltage source." Applicant asserts that the cited references

recite only capacitance sensors rather than a "current-sensing network coupled to a voltage source."

Claim 51 recites a spray applicator " wherein the control system includes a voltage-sensing network coupled to a current source." Applicant asserts that the cited references recite only capacitance sensors rather than a "voltage-sensing network coupled to a current source."

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,

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